From: Jay Field

To: Dana Davoli/R10/USEPA/US@EPA

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Subject: Re: Fw: Portland Harbor HH bass composites

Date: 10/02/2007 09:19 AM

Dana,
If you are compositing without taking equal aliquots from individual fish to create the composite sample, then you should consider using weight rather than length to estimate the relative contribution of small and large fish. For example, for the first composite on your spreadsheet, the proportion of smallest/largest is 0.75 for length and less than 0.4 for weight.
Jay

PS Did they determine the sex of individual fish and consider that information in creating the composite samples?

Davoli.Dana@epamail.epa.gov wrote:
> Mike Poulsen and I discussed bass compositing with Laura Kennedy from
> Kennedy-Jenks yesterday. We have compiled bass composites that would
> meet the objectives for the human health risk assessment. We would like
> input as to whether these composites will also meet the other objectives
> for bass in the RI/FS, including the ecological risk assessment, the
> food web model, and identification of sources of contamination. Please
> let us know if these proposed composites are OK by COB Thursday, October
> 4. Thanks!
>
> ----- Forwarded by Dana Davoli/R10/USEPA/US on 10/02/2007 08:43 AM -----
>
> "POULSEN Mike"
> <POULSEN.Mike@de
> q.state.or.us> To
> Dana Davoli/R10/USEPA/US@EPA
> 10/01/2007 04:19 cc
> PM
> Subject
> Portland Harbor HH bass
> composites
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> Dana -
>
> Based on our discussion with Laura Kennedy today, I created a
> spreadsheet showing EPA's proposed selection of smallmouth bass fish to
> be included in composites for use in the human health risk assessment.
> There are three objectives to collecting bass composites during Round
> 3B:
>
> * Estimating risks to human health from consumption of fish
> * Estimating risks to ecological receptors, and assisting
> with
> refinement of the foodweb model
> * Identifying sources by identifying the presence of
> chemicals in
> fish from separate reaches of the river
>
> We think that the compositing method proposed will meet the human health
> risk assessment objective. However, we are seeking comments from the
> rest of the EPA team on whether this approach is appropriate to meet the
> other objectives.
>
> I took LWG's R3B_bass-carp_lengths.xls spreadsheet, deleted carp data,
> deleted some columns on weight, and added columns summarizing the
> composites. For each river-mile portion (by bank), I sorted by fish
> length. The five longest fish are included in the proposed composites.
> This is indicated by an "x" in the column next to the length.
>
> For comparison, data from Round 1 bass are included at the bottom of the
> spreadsheet. Overall, the fish collected in Round 3 are similar in size
> to the fish collected in Round 1. There were some large fish caught and
> released in Round 3 because they were substantially larger than the
> planned limit of 355 mm. There were four fish greater than the maximum
> Round 1 length of 430 mm, with a maximum length of 530 mm. I do not
> think that omitting the released fish will have a substantial effect on
> the results of the chemical analyses.
>
> Our original criteria for including fish in a composite were lengths
> between 225 mm and 355 mm, and a ratio of smallest fish in composite to

> largest fish of 0.75 or greater. This was to avoid a situation where one
> large fish would dominate the concentration in a composite, and to
> minimize size as a variable that needs to be considered in evaluating
> the data. Fish that are longer generally weigh more, and are generally
> older than smaller fish. Older fish are more likely to have accumulated
> chemicals of interest. Larger fish are more desirable as food fish. For
> these reasons, including larger fish in the composite meets the needs of
> the human health risk assessment. However, we understand that larger
> fish may not be appropriate for the ecological risk assessment.
>
> The selection criteria were not strictly applied in Round 1. Many of the
> fish included in composites were greater than 355 mm. The criterion of
> 0.75 was not always met. EPA and LWG accepted the composite approach in
> Round 1, acknowledging that not all the criteria were met. We therefore
> do not feel strictly bound by the criteria in Round 3.
>
> Using the proposed compositing approach, four of the reaches do not meet
> the 0.75 criterion: RM 6 East (0.74), RM 6 West (0.71), RM 8 West
> (0.70), and RM 10 West (0.64). If the maximum length of 403 mm is
> removed from RM 10 West and replaced with the 251 mm value, the revised
> ratio is 0.77.
>
> In Round 1, the mean length in a composite was generally less than 300
> mm. In Round 3, the mean length is generally greater than 300 mm,
> particularly in upstream sampling areas. The two areas with the largest
> difference between sides of the river are RM 6 (271 mm East v. 315 mm
> West) and RM 11 (271 mm East v. 338 mm West). It is not clear if
> differences of this size in fish would confound comparisons of areas.
> For fish of similar sizes, differences in concentrations may be related
> to proximity to source areas. However, if one of the reasons for the
> differences in concentrations is the size (age) of fish, this could
> confound a determination of sources.
>
> - Mike
> <<HH bass composites R3B.xls>>
> (See attached file: HH bass composites R3B.xls)

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